(12) UK Patent Application (19) GB (11) 2 341 759 (13) A

(43) Date of A Publication 22.03.2000

(21) Application No 9916270.3

(22) Date of Filing 13.07.1999

(30) Priority Data
(31) 98030940 (32) 30.07.1998 (33) KR

(51) INT CL[7]
H04Q 7/22

(52) UK CL (Edition R)
H4L LDGX L1H10

(56) Documents Cited
WO 95/28063 A2

(58) Field of Search
UK CL (Edition R) H4L LDGP LDGX LDSY
INT CL[7] H04Q 7/22
ONLINE: WPI, EPODOC, PAJ

(71) Applicant(s)
Samsung Electronics Co., Ltd.
(Incorporated in the Republic of Korea)
416 Maetan-dong, Paldal-gu, Suwon-city,
Kyungki-do, Republic of Korea

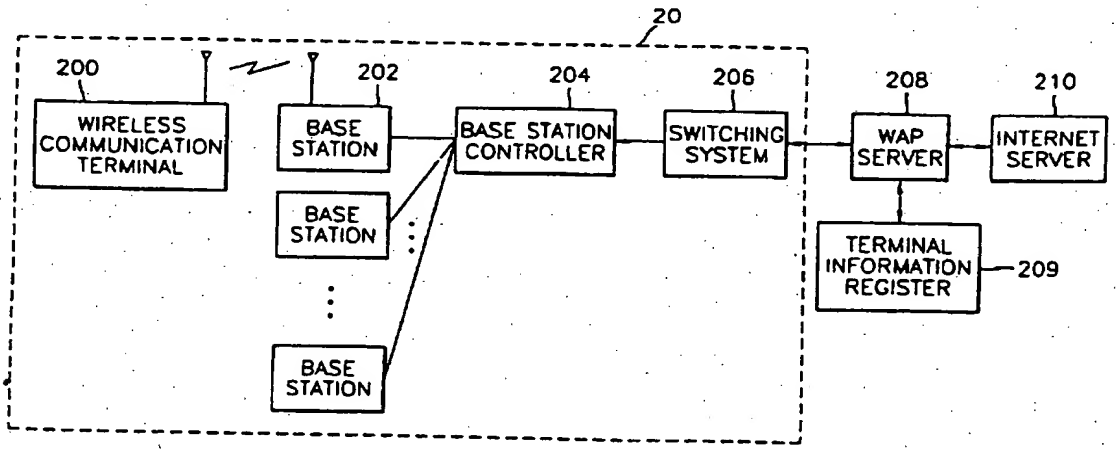
(72) Inventor(s)
Sang-seo Lee
Yong-suk Kim
Hyung-min Nam

(74) Agent and/or Address for Service
Appleyard Lees
15 Clare Road, HALIFAX, West Yorkshire, HX1 2HY,
United Kingdom

(54) Abstract Title
Method of designating a WAP server address to a mobile communication terminal

(57) A method of designating a WAP server address to a mobile terminal requesting registration includes the switching system 206 deciding whether the registered position of the mobile terminal 200 has changed since the last registration, answering the registration request, and simultaneously, transferring the address information of a corresponding WAP server 208 to the mobile terminal 200 when the registered position is unchanged or transferring the address information of a new WAP server to the mobile terminal 200 if the location has changed. Consequently, according to the movement of the mobile terminal 200, a corresponding WAP server address is automatically transferred to the wireless communication terminal 200.

FIG. 2



GB 2 341 759 A

FIG. 1

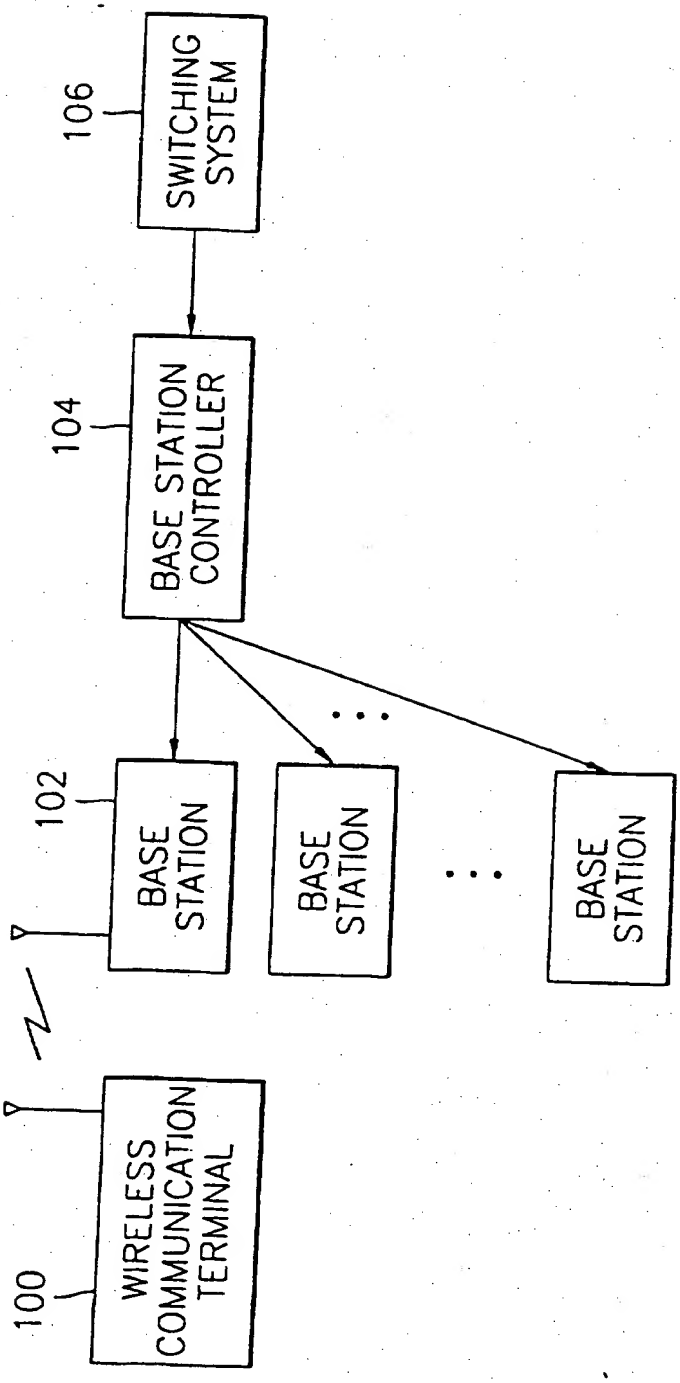

100
WIRELESS COMMUNICATION TERMINAL
102
BASE STATION
BASE STATION
BASE STATION
104
BASE STATION CONTROLLER
106
SWITCHING SYSTEM

FIG. 2

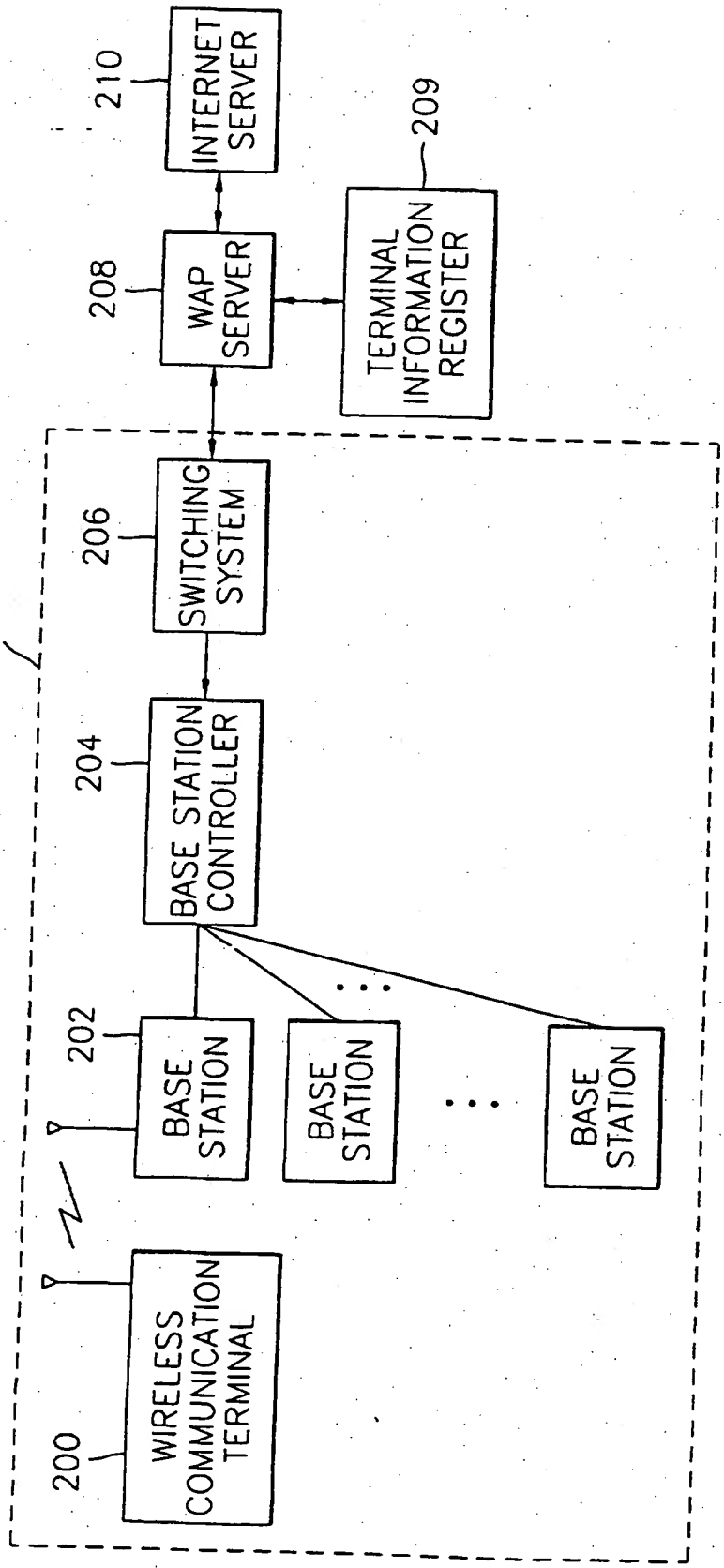
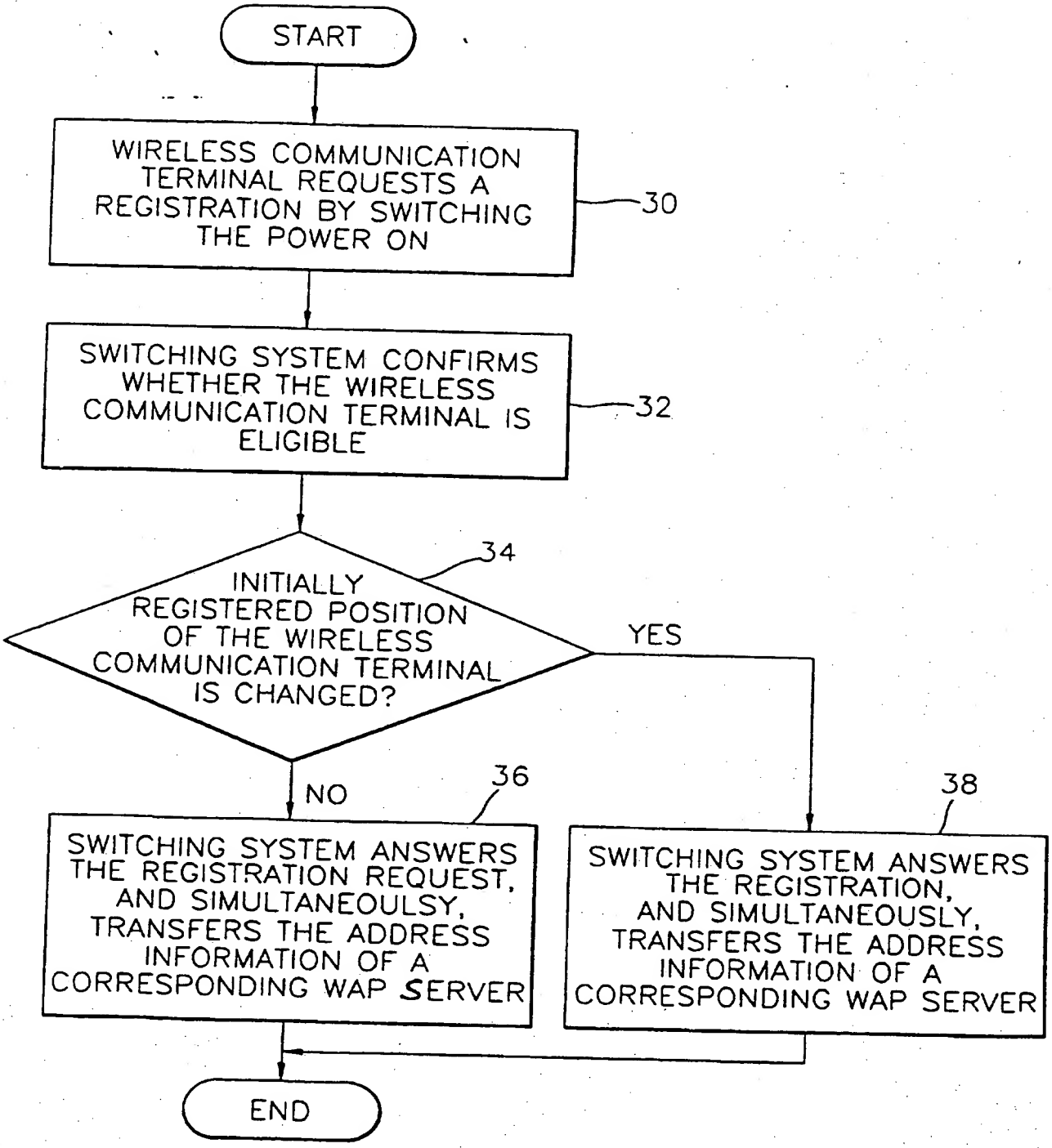


FIG. 3


START
WIRELESS COMMUNICATION TERMINAL REQUESTS A REGISTRATION BY SWITCHING THE POWER ON
30
SWITCHING SYSTEM CONFIRMS WHETHER THE WIRELESS COMMUNICATION TERMINAL IS ELIGIBLE
32
34
INITIALLY REGISTERED POSITION OF THE WIRELESS COMMUNICATION TERMINAL IS CHANGED?
YES
NO
36
SWITCHING SYSTEM ANSWERS THE REGISTRATION REQUEST, AND SIMULTANEOULSY, TRANSFERS THE ADDRESS INFORMATION OF A CORRESPONDING WAP SERVER
38
SWITCHING SYSTEM ANSWERS THE REGISTRATION, AND SIMULTANEOUSLY, TRANSFERS THE ADDRESS INFORMATION OF A CORRESPONDING WAP SERVER
END

2341759

METHOD FOR DESIGNATING WAP SERVER ADDRESS FOR WIRELESS COMMUNICATION TERMINAL

The present invention relates to a wireless communication system, and more particularly, to a method for designating an address of a WAP (wireless application protocol) server which can convert different data types into available ones between a wireless communication system and an Internet server in connection with a wireless communication terminal which can communicate with an Internet server.

A WAP server serves to connect an Internet server providing various information to a wireless communication system capable of receiving the information provided by the Internet server, and to convert different data types into available ones between the wireless communication system and the Internet server, and may provide wireless communication terminals with self-produced information.

As shown in Figure 1, the wireless communication system usually used for communicating voice data includes wireless communication terminals 100, base stations 102, a base station controller 104, and a switching system 106.

Each of the base stations 102 manages wireless communication terminals 100 within a predetermined area.

As a wireless communication terminal 100 moves from one area to another, the base station controller 104

selects an appropriate base station 102 for the wireless communication terminal 100.

The switching system 106 which establishes connections between one wireless communication terminal 100 and another wire/wireless communication terminal forms a portion of a public switched telephone network (PSTN) which establishes connections between wireless communication terminals, between wire/wireless communication terminals, and between wire communication terminals.

In order to provide a wireless communication terminal with information of Internet servers by connecting the wireless communication system to the Internet server, an intermediate system for connecting them is required. The WAP server converts possibly different data and protocols into available ones between the wireless communication system and the Internet server.

On the other hand, when a wireless communication terminal moves from one area to another area, as the base station and the switching system which manage the wireless communication terminal must be changed to corresponding ones, the WAP server managing the wireless communication terminal must be changed to another one so that the wireless communication terminal can gain access to information provided by the Internet servers. Therefore, when a registered position of the wireless communication terminal is changed to another, a new WAP server address must be designated.

Conventionally, the user of the wireless communication terminal directly inputs a WAP server address. In this case, a list of WAP addresses corresponding to positions of the wireless communication terminal must be previously prepared, the user directly designates a WAP server address according to the present position of the wireless communication terminal by referring to the address list. Therefore, it is inconvenient that whenever the wireless communication terminal moves from one area managed by one WAP server to another area, a new WAP server address must be designated.

With a view to solve or reduce the above problem, it is an aim of preferred embodiments of the present invention to provide a method for designating a WAP server address, in which when a wireless communication terminal requests a registration, i.e., tries to access an Internet server by switching the power on, a terminal information register transfers, via a corresponding base station, answering information to the registration request and address information of a WAP managing the wireless communication terminal, and in particular, when the position registration of the wireless communication terminal is changed to another one, the terminal information register transfers position registration changing information and address information of a changed WAP server.

According to an aspect of the invention, there is provided a method of designating a WAP (wireless application protocol) server address in a wireless communication system provided with a WAP server, which can convert different data and protocols into available ones

between the wireless communication system and an Internet server, the method including the steps of: a wireless communication terminal requesting a registration; a switching system confirming whether the wireless communication terminal is eligible; and the switching system answering the registration request and transferring the address information of a corresponding WAP server to the wireless communication terminal when the wireless communication terminal requesting the registration is found to be eligible.

Preferably, the switching system simultaneously with answering the registration request transfers the address information.

The initially registered position of the wireless communication terminal and the WAP server address information are preferably previously stored in a predetermined terminal information register.

Preferably, the method further includes a step of the switching system deciding whether the registered position of the wireless communication terminal which requests the registration is changed to another.

Preferably, when the registered area of the wireless communication terminal is not changed in the above step, the switching system answers the registration request, and simultaneously, transfers the address information of a corresponding WAP server to the wireless communication terminal, and when the registered area of the wireless communication terminal is changed in the above step, the switching system answers the registration renovation, and

simultaneously, transfers the address information of a corresponding WAP server to the wireless communication terminal.

When the wireless communication terminal is switched on and requests a registration at a place which is not an initially registered position, the switching system preferably decides that the registration area of the wireless communication terminal has changed.

For a better understanding of the invention, and to show how embodiments of the same may be carried into effect, reference will now be made, by way of example, to the accompanying diagrammatic drawings in which:

Figure 1 is a schematic diagram illustrating a general wireless communication system;

Figure 2 is a structural block diagram illustrating a WAP server address designation system according to an embodiment of the present invention; and

Figure 3 is a flow chart illustrating a method for designating a WAP server address according to embodiments of the present invention.

Referring to Figure 2, a WAP server address designation system includes a wireless communication system 20, a WAP server 208, a terminal information register 209, and an Internet server 210, and the wireless communication system 20 includes a wireless communication terminal 200, base stations 202, a base station controller 204, and a switching system 206.

Here, the wireless communication terminal 200 is a terminal which can receive information provided by the Internet server 210 and is capable of data communication and voice communication. That is, the wireless communication terminal 200 indicates a terminal capable of wireless data communication in which character information provided by the Internet server can be communicated in a wireless manner, in addition to the voice communication as in a general wireless telephone. Accordingly, data transmission and reception including an electronic mail are possible via this wireless communication terminal 200.

Each of the base stations 202 manages the wireless communication terminal 200 within a predetermined area.

The station controller 204 selects an appropriate base station for the wireless communication terminal 200 as the wireless communication terminal 200 moves from one area to another.

The switching system 206 forms a portion of a public switched telephone network (PSTN) which establishes connections between the wireless communication terminal 200 and other wired/wireless communication terminals.

In addition, the switching system 206 controls the allocation of wireless communication channels and communication channel shifts, maintains necessary information by continuous data communication with the station controller 204, monitors and analyzes traffic of communication circuits, and may redistribute communication load according to the collected traffic data.

The Internet server 210 is a self-produced information supply source in Internet communications.

The WAP server 208 is a system for connecting the wireless communication system 20 and the Internet server 210, and is intended to convert different data formats or different protocols into available ones between the wireless communication system 20 and the Internet server 210. Also, the WAP server 208 in itself acts as an information supply source.

The terminal information register 209 stores address information of the WAP servers managing the wireless communication terminal 200. That is, the WAP server 208 which supplies information to the wireless communication terminal 200 is changed to another one depending on the position of the wireless communication terminal 200. Therefore, in the present invention, when the wireless communication terminal 200 moves to another area, the switching system 206 transfers a corresponding WAP server address stored in the terminal information register 209 to the wireless communication terminal 200 via a corresponding base station.

Figure 3 shows a flow chart illustrating a method for designating a WAP server address according to an embodiment of the present invention.

A method for designating a WAP server address when, initially, the wireless communication terminal requests a registration by switching the power on and when the

registered position of the wireless communication terminal is changed to another is described.

The wireless communication terminal 200 requests a registration by switching the power on (step 30). That is, when the power of the wireless communication terminal 200 is switched on, the corresponding base station 202 informs the switching system 206 of this fact.

At this time, the switching system 206 confirms whether the wireless communication terminal 200 is eligible (step 32).

When the wireless communication terminal 200 requesting the registration is eligible in step 32, the switching system 206 decides whether the position of the wireless communication terminal 200 is changed to another using previously registered position information and WAP server address information corresponding to the registered position information stored in the terminal information register 209 (step 34). That is, the wireless communication terminal 200 registers its position in the terminal information register 208 according to an initial registration area, and the registration information is stored in the terminal information register 208. In addition, when the wireless communication terminal 200 is switched on and requests a registration at a place which is not an initially registered position, the switching system 206 decides that the registration area of the wireless communication terminal 200 is changed depending on the information registered in the terminal information register 208.

When the registered area of the wireless communication terminal 200 is not changed in step 34, the switching system 206 answers the registration request, and simultaneously, transfers the address information of a corresponding WAP server to the wireless communication terminal 200 (step 36).

When the registered area of the wireless communication terminal 200 is changed in step 34, the switching system 206 answers the registration renovation, and simultaneously, transfers the address information of a corresponding WAP server to the wireless communication terminal 200 (step 38).

Though it has been described that the switching system transfers the address information of a corresponding WAP server to the wireless communication terminal, since the address information of a corresponding WAP server is transfered to the wireless communication terminal necessarily via the corresponding base station connected to the switching system, it is possible to describe that a corresponding base station transfers the address information of a corresponding WAP server to the wireless communication terminal.

As described above, according to embodiments of the present invention, whenever the registration area of a wireless communication terminal is changed, a switching system, if there is a registration request of the wireless communication terminal, automatically transfers a corresponding WAP server address to the wireless communication terminal. The user of the wireless communication terminal need not input a corresponding WAP address. Consequently, there is an advantage in which,

according to the movement of the wireless communication terminal, a corresponding WAP server address is automatically transferred to the wireless communication terminal.

The reader's attention is directed to all papers and documents which are filed concurrently with or previous to this specification in connection with this application and which are open to public inspection with this specification, and the contents of all such papers and documents are incorporated herein by reference.

All of the features disclosed in this specification (including any accompanying claims, abstract and drawings), and/or all of the steps of any method or process so disclosed, may be combined in any combination, except combinations where at least some of such features and/or steps are mutually exclusive.

Each feature disclosed in this specification (including any accompanying claims, abstract and drawings), may be replaced by alternative features serving the same, equivalent or similar purpose, unless expressly stated otherwise. Thus, unless expressly stated otherwise, each feature disclosed is one example only of a generic series of equivalent or similar features.

The invention is not restricted to the details of the foregoing embodiment(s). The invention extend to any novel one, or any novel combination, of the features disclosed in this specification (including any accompanying claims, abstract and drawings), or to any novel one, or any novel

combination, of the steps of any method or process so disclosed.

CLAIMS

1. A method of designating a WAP (wireless application protocol) server address in a wireless communication system provided with a WAP server, which can convert different data and protocols into available ones between the wireless communication system and an Internet server, the method including the steps of:

a wireless communication terminal requesting a registration;

a switching system confirming whether the wireless communication terminal is eligible; and

the switching system answering the registration request and transferring the address information of a corresponding WAP server to the wireless communication terminal when the wireless communication terminal requesting the registration is found to be eligible.

2. The method of claim 1, in which, the switching system simultaneously with answering the registration request transfers the address information.

3. The method of designating a WAP server address as claimed in claim 1 or 2, wherein the initially registered position of the wireless communication terminal and the WAP server address information are previously stored in a predetermined terminal information register.

4. The method of designating a WAP server address as claimed in claim 3, wherein the method further includes a

step of the switching system deciding whether the registered position of the wireless communication terminal which requests the registration is changed to another.

5. The method of designating a WAP server address as claimed in claim 4, wherein when the registered area of the wireless communication terminal is not changed in the above step, the switching system answers the registration request, and simultaneously, transfers the address information of a corresponding WAP server to the wireless communication terminal, and when the registered area of the wireless communication terminal is changed in the above step, the switching system answers the registration renovation, and simultaneously, transfers the address information of a corresponding WAP server to the wireless communication terminal.

6. The method of designating a WAP server address as claimed in claim 4, wherein when the wireless communication terminal is switched on and requests a registration at a place which is not an initially registered position, the switching system decides that the registration area of the wireless communication terminal has changed.

7. A method for designating a WAP server address, the method being substantially as herein described with reference to Figures 2 and 3 of the accompanying drawings.

The Patent Office

INVESTOR IN PEOPLE

14 –

Application No: GB 9916270.3 **Examiner:** Nigel Hall
Claims searched: all **Date of search:** 12 January 2000

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.R): H4L (LDGP, LDGX, LDSY)

Int Cl (Ed.7): H04Q 7/22

Other: Online: WPI, EPODOC, PAJ

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
A	WO95/28063 A2 (NOKIA)	

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.